

## ABSTRACT OF THE DISCLOSURE

Provided are a nonvolatile variable resistor with a structure capable of suppressing an increase in resistance in a case where scaling is applied to reduce a projected area on a plane, a memory device using the nonvolatile variable resistor, and a scaling method of a nonvolatile variable resistor. A first electrode and a second electrode formed on a substrate face each other in a direction of a surface of the substrate. The first electrode is used as an inner electrode, a nonvolatile variable resistance body is formed on an outer surface of the first electrode and the second electrode is formed as an outer electrode on an outer surface of the nonvolatile variable resistance body.